Service Bulletin SB-0042

Epic Aircraft, LLC ◆ 22590 Nelson Road ◆ Bend OR 97701
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Subject: Hydraulic Suppressor FOD

ATA-Code: 29-10

Labor: 8.0 Hours

Effectivity: K003-K037

Affected Model(s): E1000, E1000 GX

Due: Within 10 flight hours

Compliance: Mandatory

Recurrence: No

1 BACKGROUND AND PURPOSE:

FOD has been discovered in the hydraulic system of the Epic E1000 and has been determined to originate from components within the hydraulic suppressor. The material has been traced back to the bladder and some internal O-rings that are located around the diffuser.

This service bulletin provides instructions to inspect the hydraulic suppressor, remove the O-rings from the suppressor, and lower the nitrogen pressure for the suppressor.

2 REFERENCES:

Epic E1000 Airframe Maintenance Manual, PN SK05000000
Epic E1000 Airplane Flight Manual, P/N SK05000001

3 WARRANTY:

For aircraft under warranty, parts and labor will be covered by Epic Aircraft, LLC if the work is performed within the compliance period and at an Authorized E1000 Service Center.

4 APPROVAL:

The engineering aspects of this service document have been shown to comply with the applicable Federal Aviation Regulations and are FAA approved.

5 REVISION:

A: If the original issue of this service bulletin was complied with, compliance with revision A is not required.

- Changed Serial Number Effectivity to “K003-K037”.
- Added step to inspect suppressor for machining FOD.
- Changed Labor to 8.0 hours.
- Removed and replaced steps to test landing gear.
- Added note on how to check fluid levels
- Added E1000 AFM to references list.
- Added E1000 IPC to Publications Affected list.
- Added parts kit for rebuild parts instead of individual parts.

6 TOOLS:

No.	Description	Qty	Epic Aircraft Supplied	Customer Supplied
1.	Common Hand Tools	A/R	☐	☒
2.	Hydraulic Aircraft Jacks, 10,000lb capacity.	3	☐	☒

7 PARTS/MATERIALS:

No.	Part Number	Description	Qty	Epic Aircraft Supplied	Customer Supplied
1.	MIL-PRF-83282 or MIL-PRF-87257	Hydraulic Fluid	A/R	☐	☒
2.	WM-3656-80 NDO	Suppressor Bladder Rebuild Kit	A/R	☒	☐
4.	WM-3056-8-NTO / PK99005371	Suppressor, HYD shock/noise/vib/pulsation, ¾-16 ST THD, 3000PSI	A/R	☒	☐
5.	VV-P-236 Petrolatum	Light Lubricating Grease	A/R	☐	☒
6.	PK99005201	Filter element, spin on	1	☒	☐

8 INSTRUCTIONS:

1. Raise the airplane using jacks (refer to Epic E1000 Aircraft Maintenance Manual, PN SK05000000, Chapter 7-10).
2. Set the BATT 1 and BATT 2 switches to OFF.
3. Remove all external electrical power from the airplane (refer to Epic E1000 Aircraft Maintenance Manual, PN SK05000000, Chapter 24-40).
4. Remove the top and side engine cowls (refer to Epic E1000 Aircraft Maintenance Manual, PN SK05000000, Chapter 71-10).
5. Remove both intercoolers and associated tubing to the extent necessary to gain access to the hydraulic suppressor (refer to Epic E1000 Aircraft Maintenance Manual, PN SK05000000, Chapter 21-10).

WARNING: Make sure the hydraulic system is depressurized before opening any hydraulic lines. Perform the depressurization procedure if needed, (refer to Epic E1000 Aircraft Maintenance Manual, PN SK05000000, 29-10.2.H.).

6. Remove Hydraulic suppressor (refer to Epic E1000 Aircraft Maintenance Manual, PN SK05000000, Chapter 29-10).

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WARNING: Suppressor is charged to 1250 +/-50psi. Use caution when venting gas.

7. Replace suppressor with new unit OR disassemble the suppressor in a clean dry place (refer to Figure 1).
    - **a.** Vent the gas charge.
    - **b.** Place the suppressor in a vise or fixture.
    - **c.** Remove one of the end caps with a spanner wrench or dowl pins.
    - **d.** Turn the suppressor 180 degrees in the vise or fixture and remove the other end cap.
    - **e.** Push the diffuser tube out of the suppressor body.
    - **f.** Remove the bladder from the steel body.
        - **i.** Use a flat blade to remove the flanges of the bladder from its grooves.
        - **ii.** Press the bladder out one side.

Note: Removal of the charging valve is not necessary in this process.

8. Remove and discard two number 40 O-rings and one number 30 O-ring on the diffuser (refer to figure 1 for location).
9. Inspect the bladder for damage, replace it if there are any signs of extrusion or damage (refer to figure 2 for image of known damage).
10. Inspect all debris that could become loose within the hydraulic system.
11. Reassemble the suppressor and DO NOT reinstall the internal O-rings from step #8. End cap O-rings are still required for re-assembly (refer to figure 1).

Note: Either end of the suppressor can serve as an inlet or outlet.

- **a.** Lubricate the O-rings and face of the end cap that comes in contact with the bladder with VV-P-236 Petrolatum, light lubricating grease.
- **b.** Place the end cap O-rings in the grooves of the end cap (p/n 60).
- **c.** Insert the bladder (p/n 80) into the steel body (p/n 10).

Note: The flanges at the ends of the bladder must be properly seated in the grooves of the steel body. Do not lubricate the bladder at this time.

- **d.** After installing the bladder and properly seating it, lubricate the bladder with VV-P-236 Petrolatum, light lubricating grease.
- **e.** Place one end cap in a vice or fixture to hold it during assembly.

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f. Lubricate the face of the end cap.

g. Place the steel body over the end cap and thread it until metal-to-metal contact.

h. Lubricate the outside diameter of the diffuser tube (p/n 70) with hydraulic oil and insert it into the bladder.

i. Thread the second end cap into the open end of the steel body until you have metal-to-metal contact.

j. Tighten each end cap another 5 degrees with a spanner wrench or dowl pins.

12. Reinstall the Hydraulic suppressor (refer to Epic E1000 Aircraft Maintenance Manual, PN SK05000000, Chapter 29-10).

Note: Aircraft Maintenance Manual currently calls for 1250psi, future revision will reflect new pressure.

13. Service the suppressor with nitrogen to 150 +0/-50psi (refer to Epic E1000 Aircraft Maintenance Manual, PN SK05000000, Chapter 12-10 for steps).

14. Replace hydraulic filter with new unit (refer to Epic E1000 Aircraft Maintenance Manual, PN SK05000000, Chapter 29-10).

15. Drain and replace the hydraulic fluid (refer to Epic E1000 Aircraft Maintenance Manual, PN SK05000000, Chapter 12-10).

Note: If the hydraulic system is functioning as intended, skip the flush procedure (step 15).

16. Flush the hydraulic system of any rubber FOD found (refer to Epic E1000 Aircraft Maintenance Manual, PN SK05000000, Chapter 29-10).

17. Lower the aircraft off the jacks (refer to Epic E1000 Aircraft Maintenance Manual, PN SK05000000, Chapter 7-10).

18. Check system for leaks and fluid levels.

a. Perform an engine run per Airplane Flight Manual P/N SK05000001 to pressurize the hydraulic system.

b. Check all connections and hoses for leaks.

c. Check fluid level on reservoir.

Note: hydraulic fluid level should be checked 5 minutes or more after engine shutdown and the fluid should be between the top and the middle of the sight gauge.

19. Install the airplane belly panels (refer to Epic E1000 Aircraft Maintenance Manual, PN SK05000000, Chapter 57-10).

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Figure 1: Suppressor Assembly

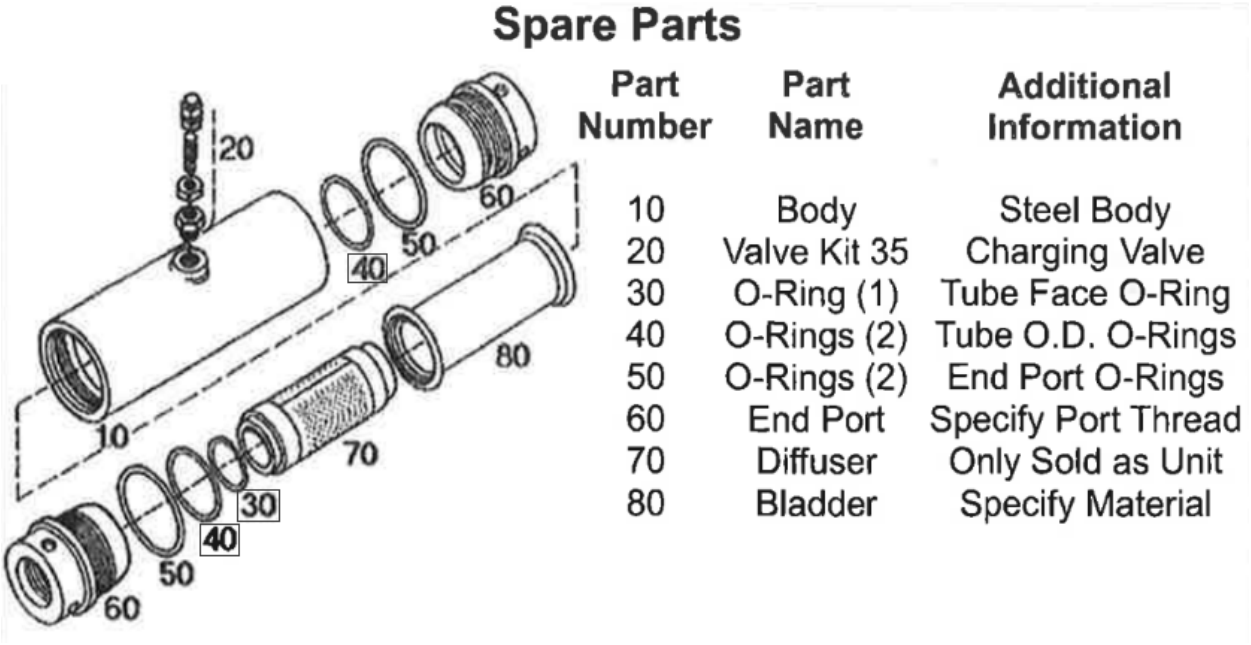
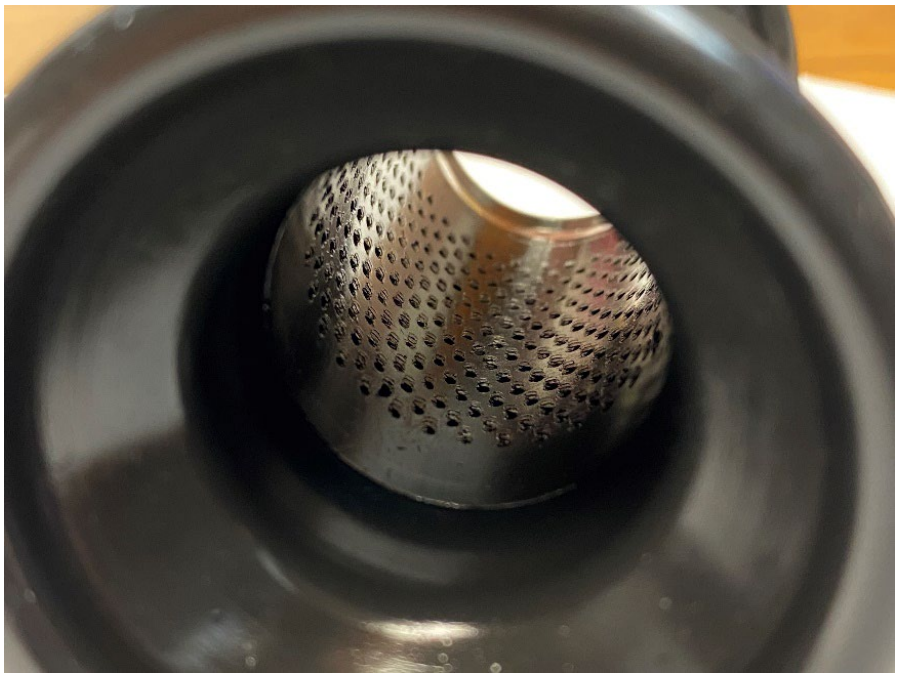


Figure 2: Damaged Bladder



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Figure 3: Good Bladder:



9 WEIGHT AND BALANCE:

N/A

10 PUBLICATIONS AFFECTED:

Epic E1000 Airframe Maintenance Manual, PN SK05000000
Epic Illustrated Parts Catalog, P/N SK05000004

11 RECORD COMPLIANCE:

Make appropriate entry in airplane maintenance records.

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Appendix A: Compliance Letter

Please complete and mail this form to Customersupport@epicaircraft.com

This is to certify that I have completed the work in accordance with the Epic Aircraft, LLC Service Bulletin.

Aircraft Owner Information:
Date: _____ Aircraft Serial Number: _____ Aircraft Reg. Number: _____ Owner's Name: _____
Maintenance Entity Information
Name of Shop Performing the work: _____ Name of Person(s) Performing inspection and/or work: _____ Phone Number: _____ Email: _____